It too seldom occurs that men of high attainments and experts in their professions, possessed of both technical and scientific, practical and 'theoretical,' knowledge, are either able or willing to give time and thought to the production of works of this sort, and the task of provision of much-needed text-books and hand-books is too generally left either to the man of science without expert knowledge in the practical field or to the practitioner lacking sound and extensive scientific culture and training. This, which is a text-book for those desiring to secure practical knowledge of marine engineering with, at the same time, accurate understanding of its scientific foundations, is a model which it is to be hoped will furnish stimulus to many other able men in as many other departments. Its field is well laid out, its scheme and details well planned and handled and it is concise, simple, clear and satisfactorily full. Dr. Durand is an authority in his department, expert in its practice and familiar with its scientific basis, accustomed to combine science with practice, an experienced engineer, a trained and successful educator. The book is authoritative and cyclopedic and in it practical marine engineering is reduced to its simplest and most exact terms.

Its chapters discuss the materials of engineering, including the fuels, their methods of preparation and production, and their characteristics and qualities; boilers and their construction; marine engines, auxiliaries and accessories, their operation, management and repair. Special topics and problems illuminate and render usefully applicable the principles enunciated, and the second part of the work is devoted particularly to 'Computations for Engineers,' carefully selected and skilfully solved problems.

The introduction on board the modern steamship of refrigerating and other special machinery leads to the study, in appropriate chapters, of the apparatus of electric light and power distribution and of refrigeration, their care and management. These chapters are admirably concise and yet complete for their purpose.

The book is well made, the type excellent and the illustrations clear and freely supplied, especially as illustrating the details of construction of marine machinery. So far as can be seen at a first review of its contents, the book is thoroughly up to date and very accurate, a credit alike to author, publisher and printer. It has its origin, apparently, in the public spirit and enterprise of the publishers of the technical journal, *Marine Engineering*, under whose imprint it appears.

R. H. T.

Studies in Physiological Chemistry. Edited by R. H. CHITTENDEN, Ph.D. New York, Scribner's Sons. 1901.

This volume of 424 pages, one of the Yale Bicentennial publications, contains reprints of the more important studies issued from the laboratory of physiological chemistry of Sheffield Scientific School of Yale University, during the years 1897–1900.

The twenty-six papers, representing the work of Professor Chittenden and his pupils during this time, are simply reprints from the *American Journal of Physiology*, the *Journal of Experimental Medicine* and *Zeitschr. f. physiol. Chemie*, Bd. XXIX., and form a valuable sequel to the three volumes of studies previously issued from this laboratory in 1885, 1887 and 1889. A complete bibliography of the Sheffield Laboratory of Physiological Chemistry from its commencement in 1875 until the end of the year 1900 is also given.

As these studies are more or less familiar and as they have been reviewed in the original, it is hardly necessary to enter into any detailed criticism of them. In viewing the work coming recently from this laboratory, one is struck with the radical change in direction in the line of research from the earlier investigations. It would be most interesting to have researches from the Sheffield laboratory on the products of proteolysis, in view of the recent researches of Kutscher, Siegfried, Balke, Lawrow, Pick and others. This line of work, so ably carried out by Kühne and Chittenden in 1883–4, has undergone such radical modifications in latter years that the views and investigations of one of the

pioneers would be most valuable to science. Although Professor Chittenden attempts to reconcile his views in regard to antipeptone with modern investigations, in an addendum to 'a chemico-physiological study of certain derivatives of the proteids,' page 321, still we think he fails to make his point very clear.

John A. Mandel.

Primitive Man. By Doctor Moriz Hoernes. Translated into English by James H. Loewe, London, 1900. Dent and Co. Pp. 136, Figs. 48.

This handy little 16mo volume forms the twenty-third number in the series of Temple Primers designed by the publishers to furnish, for a shilling a copy, the best and latest results of scholarship to the average reader who cannot afford the costly encyclopedias. Beginning with the subject of man's place in nature the author sums up the characteristics of culture, the earliest traces of man, the ages of stone, bronze and iron; and the primitive history of the Aryans and Semites. Small space is given to the Western Hemisphere, but that is fortunate in two ways, for some wild guessing has been done on that topic, and, secondly, American readers will be glad to have a handy little guide book to European archeology. Not one American authority is mentioned in the bibliography and no European work later than 1894.

O. T. Mason.

Anleitung zur mikroskopischen Untersuchung der vegetabilischen Nahrungs- und Genussmittel. By Dr. A. F. W. Schimper, ö. Professor der Botanik an der Universität Basel. Second revised edition. Jena, Verlag von Gustav Fisher. 1900.

A melancholy interest attaches to the consideration of this book owing to the recent death of Dr. Schimper in the prime of life. Here in a space of 150 pages we have a very attractive and useful introduction to the microscopic appearance of flours, starches and their adulterants; of coffee and its adulterants; cocoa, chocolate, tea, tobacco, pepper, cloves, allspice, red pepper, mustard, saffron, cinnamon, vanilla, cardamon, nutmeg, mace, ginger and turmeric. There is also a chapter on the adulterants of fruit jellies, and one on honey. The book contains a good index and 134 figures, which are well drawn and very attractive. Among the substances used for adulterating coffee Schimper mentions the following: Chickory, beets, carrots, figs, various cereals, lupin seeds, acorns, carobs, dates, vegetable ivory, potatoes. These are described in a space of twenty pages with seventeen illustrations. Under fruit jellies, we learn that agar-agar is frequently employed for their adulteration and that this substance may be detected readily by means of the microscope, owing to the fact that these seaweeds always have numerous diatoms clinging to their surface, as any one may determine readily by burning a small quantity of agar-agar in a platinum dish, adding to the ashes a few drops of water rendered acid by HCl and then examining under high powers of the microscope. When jellies are suspected of adulteration with agar-agar, the author recommends that the mass of jelly be boiled with about five per cent. dilute sulphuric acid, and then that a few crystals of permanganate of potash be carefully added. The previously suspended diatom shells now fall to the bottom and form a more or less rich sediment, which may be examined without any further preparation.

In this age of haste to be rich at any cost, the extension of the adulteration of food products has become very great, and the knowledge contained in books of this kind increases yearly in importance, not only to the special worker, but to the general public. The moderate price of four Marks in paper covers, or five Marks, bound, puts the book within the reach of every one.

Erwin F. Smith.

Use-Inheritance illustrated by the Direction of Hair on the Bodies of Animals. By Walter Kidd, M.D., F.Z.S. London, Adam and Charles Black. 1901.

This is an interesting contribution to the dynamic or Lamarckian principles of evolution. Dr. Kidd has first treated of the formation of whorls in the hairy coats of mammals; and second, the slope of hair in certain selected regions of the bodies of animals and